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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/661,429	09/13/2000	Simon Fafard	99388-US	8408

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT PAPER NUMBER

2815

DATE MAILED: 09/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/661,429

Applicant(s)

FAFARD, SIMON

Examiner

Joseph Nguyen

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of claims 1-20 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Therefore, claims 1-20 are hereby prosecuted whereas claims 21-27 have been cancelled.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "36" has been used to designate both optical guide and quantum dot laser diode in figure 2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 13. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "wetting layer" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to because the *crossed out numerals* should be completely removed from figure 2 so that the claimed invention can be better illustrated by figure 2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation "layers forming laser diode consist mainly of gallium, indium, aluminum, arsenic, *nitrogen* and phosphorous" is not supported by the specification. There is nowhere in the specification that *nitrogen* is used in the layers forming laser diode.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Cook.

Regarding claim 1, Cook discloses on figure 2 a laser system comprising a laser diode 10 with low dimensional quantum structures (col. 7, lines 29-32) for emitting light over a wide range of wavelengths, a wavelength selective element 30 for selecting a wavelength of interest emitted by said laser diode, and external cavity resonant at a wavelength selected by said wavelength selective element so that the system generates laser light at said selected wavelength.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook as applied to claim 1 above, and further in view of Osinski et al.

Regarding claim 2, Cook discloses on figure 2 substantially all the structure set forth in the claimed invention except the low dimensional quantum structures being quantum dot structures. However, Osinski et al discloses the low dimensional quantum structures being quantum dot structures (col. 9, lines 1-10). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cook by having the low dimensional quantum structures being quantum dot structures for the purpose of obtaining a high efficiency broad area semiconductor laser as taught by Osinski et al (col. 3, lines 50-52).

Regarding claims 3-4, Cook and Osinski et al together disclose all the structure set forth in claims 3-4.

Regarding claim 5, the claim limitation is merely product by process and therefore not given patentable weight.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook and Osinski et al as applied to claim 5 above, and further in view of Romano et al.

Regarding claim 6, Cook and Osinski et al disclose substantially all the structure set forth in the claimed invention except a wetting layer underneath the low dimensional structures. However, Romano et al discloses on figure 2 a wetting layer 220 underneath the low dimensional structures 250. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cook and Osinski et al by having a wetting layer underneath the low dimensional

structures for the purpose of promoting smooth, uniform overage of the substrate as taught by Romano et al (col. 4, lines 36-40).

Regarding claim 7, the claim limitation is functional language and therefore not given patentable weight.

Claims 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook and Osinski et al and Romano et al as applied to claim 7 above, and further in view of Sugiyama.

Regarding claim 8, Cook and Osinski et al and Romano et al disclose substantially all the structures set forth in the claimed invention except intermediate layers between the active region and the electron and hole emitting layers. However, Sugiyama discloses intermediate layers between the active region and the electron and hole emitting layers (col. 5, lines 4-15). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cook and Osinski et al and Romano et al by having intermediate layers between the active region and the electron and hole emitting layers for the purpose of improving the performance of a semiconductor laser.

Regarding claims 9-10, Cook and Osinski et al and Romano et al and Sugiyama disclose substantially all the structure set forth in the claimed invention except the laser diode consisting mainly of gallium, indium, aluminum, arsenic, nitrogen and phosphorous. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cook and Osinski et al and Romano et

al and Sugiyama by having the laser diode consisting mainly of gallium, indium, aluminum, arsenic, nitrogen and phosphorous for the purpose of improving the performance of a semiconductor laser diode, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claims 11-16, Cook and Osinski et al and Romano et al and Sugiyama disclose substantially all the structure set forth in the claimed invention except the graded compositions of electron and hole emitting layers, active region and barrier layers. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Cook and Osinski et al and Romano et al and Sugiyama by having the graded compositions of electron and hole emitting layers, active region and barrier layers for the purpose of improving the performance of a semiconductor laser diode, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 17-20, Cook and Osinski et al and Romano et al and Sugiyama disclose substantially all the structure set forth in the claimed invention.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5841152 to Ishikawa discloses an optical semiconductor device.

US Patent 6052400 to Nanbu et al discloses a variable wavelength laser.

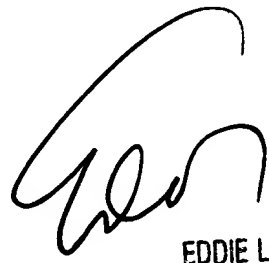


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN  
August 22, 2002



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